

CHAPTER 1



Introduction

Typhoid fever is an acute infectious disease with clinical symptoms of toxicity for whole body due to *Salmonella typhi* or *para typhi* A,B,C. It can cause a big epidemic through infection by drinking and eating.

The combination of vaccine, improvement of sanitation and using specific antibiotics for typhoid fever had reduced mortality, complication and new cases. This was performed clearly in developed countries .

In the United States of America in 1920 there were 35,000 typhoid fever cases, but in 1992 there were only 500 cases and almost all of them were infected from travelling in Asia or Africa ⁽¹⁾. In France 1976 there were 2,000 cases of typhoid fever but in 1984 only 691 cases were diagnosed ⁽²⁾.

However in developing countries the typhoid fever is still very common. The estimated incidence of typhoid fever in the endemic areas was 540 / 100,000 population ⁽³⁾.

Vietnam is a developing country with very low standard of living. The people behavior and knowledge on hygiene and sanitation of the population are poor, moreover it is located in tropical area, where typhoid fever, especially in southern Vietnam, is a big problem that needs to be solved. The total typhoid fever cases in 19 southern provinces for 7 years (1991-1997) was 106,984 and 63 cases died.

Table 1: Morbidity, mortality of typhoid fever in the south of Vietnam
from 1991 to 1997

Year	Cases/100,000	Death/100,000	Death/ cases %
1991	30.1	0.05	0.17
1992	32.6	0.04	0.12
1993	52.9	0.02	0.05
1994	80.2	0.06	0.07
1995	107.9	0.05	0.05
1996	64.5	0.02	0.03
1997	52.6	0.01	0.02

Some big epidemics of typhoid fever occurred in: Kien Giang in 1993 with 2,459 cases, Long Phu in 1994 with 520 cases, Thu Duc 5/1994 – 12/1994 with 380 cases (Thu Duc is one district of Ho Chi Minh City) ⁽⁴⁾

To solve this problem besides improving of sanitation, hygiene, change in population behavior, the detection of typhoid fever cases in early stage is very important. It helps physician to make a decision in treating, help patients to recover quickly and prevents complication. Furthermore, the early detection helps to manage and solve an epidemic when it occurs.

The diagnosis of typhoid fever in Vietnam are based on blood, stool culture and Widal test.

Blood culture is considered as gold standard test but it is only done in province and some district hospitals because of equipment and cost requirement. However, blood culture is not useful for early diagnosis of typhoid fever, as it takes time to give the results (48 – 72 hours) and yield is often low (30 – 50%). Hence their use is limited to a confirmatory basis only.

Widal test is still only the one used in serological test in diagnosing typhoid fever. Even it is just used as routine test but the results positive was not high: 25.8% ⁽⁴⁾. Moreover this test has some limitations like:

- The difficulty in interpretation of results.
- The need to demonstrate a four-fold rise in the titer after a week or reach to standard dilution at the first time.
- The necessity of knowing the endemic areas.

Hence the physicians in many locations in Vietnam rely mainly on the clinical picture of the patients often making an intelligent guess. In the absence of more definite tests the presence of these features aid physicians in making the diagnosis and treatment. However to avoid prolonged hospital confinement and associated morbidity, there is a need for a rapid diagnostic test that is reliable and more available for diagnosis of typhoid fever.

The dot enzyme immunoassay (typhi dot test) is a qualitative antibody detection test for diagnosis of typhoid fever. It takes only one hour to get the results without special equipment and the value of tests were evaluated in many studies with the following conclusions:

- The dot EIA offers the advantage of simplicity, speed, early diagnosis, economic and flexibility ⁽³⁾. The sensitivity was 91-95% and specificity was 90-96%⁽⁵⁾

With the difficult situation in Vietnam, typhi dot test is relevant to be implemented for diagnosis of typhoid fever. So in this study, the diagnostic value of typhi dot test for typhoid fever in Vietnamese patients was evaluated.